DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on August 11, 2008 has been entered.

Applicants' amendments and arguments have been fully considered but are not persuasive to place all claims in condition for allowance. All rejections not reiterated herein are hereby withdrawn.

In particular, the previous rejection of claim 28 under 35 U.S.C. 112, second paragraph has been obviated by the cancellation of claim 28.

The previous rejection of claims 20-28 and 30-33 under 35 U.S.C. 112, first paragraph, written description, has been obviated by the cancellation of claims 20-26, 28 and 30-33 and the amendments to the claims.

The previous rejection of claims 20-25 and 33 rejected under 35 U.S.C. 102(a) as being anticipated by Kwiatkowski has been obviated by the cancellation of these claims.

Election/Restrictions

2. Claims 18, 19, 27, 34 and 35 are pending.

Claims 27, 34 and 35 have been examined herein.

Claims 18 and 19 are withdrawn from consideration as being drawn to an invention nonelected with traverse in the reply filed on November 15, 2006.

3. The following constitute new and modified grounds of rejection, as necessitated by the amendment to the claim 27 and the addition of new claims 34 and 35.

Claim Rejections - 35 USC § 112 - Enablement

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 27, 34 and 35 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods for detecting the presence of a polymorphism in a human subject wherein the polymorphism is selected from the group consisting of D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174 , does not reasonably provide enablement for methods for predicting the transmission or development of familial dysautonomia (FD) in a human subject by performing only the steps of determining whether any allele of one of the polymorphisms selected from the group consisting of D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174 is present on chromosome 9, and predicting for the human subject the transmission or development of FD based on the presence or absence of the polymorphism, or by assaying for any allelic variant of the D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174 polymorphisms to thereby predict the transmission or development of FD. The

specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The following factors have been considered in formulating this rejection (*In re Wands*, 858F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988): the breadth of the claims, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, the amount of direction or guidance presented, the presence or absence of working examples of the invention and the quantity of experimentation necessary.

Breadth of the Claims:

The claims are drawn to a method for predicting the transmission or development of familial dysautonomia (FD) in a human subject comprising determining whether a polymorphism selected from the group consisting of D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 or D9S174 is present on chromosome 9, wherein the polymorphism is predictive of transmission or development of FD, and predicting transmission or development of FD based on the presence or absence of the polymorphism.

The polymorphic markers D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174 may consist of a number of different allelic variants. However, the claims do not recite detecting any particular allele of the polymorphic markers. For example, for the D9S58 marker, there are at least 22 allelic variants (i.e.,

different lengths for this marker region; see Table 3), and for D9S105 there are at least 10 allelic variants (Table 3). Thereby, the claims encompass detecting transmission or development of FD by assaying for any allele of the polymorphic markers D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 or D9S174.

Further, the claims recite only the step of determining the presence of one of the polymorphisms. The claims do not recite any of the essential process steps which allow one to determine transmission of a polymorphism correlated with FD in a test subject, such as the steps of detecting the presence of the polymorphism in affected and non-affected maternal and paternal and blood relative subjects in order to determine the inheritance pattern of particular polymorphic alleles of D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174 which co-segregate with FD in the family of the test subject.

Nature of the Invention

The claims encompass methods of predicting transmission or development of FD by assaying for the presence of a polymorphism. The invention is in a class of inventions which the CAFC has characterized as 'the unpredictable arts such as chemistry and biology" (Mycolgen Plant Sci., Inc. v. Monsanto Co., 243 F.3d 1316, 1330 (Federal Circuit 2001)).

Teachings in the Specification and State of the Art:

The specification teaches the polymorphisms D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174, which are located within the region

between D9S59 and D9S127 (see page 38 and Table 1). The specification also teaches a linkage analysis between these polymorphisms and FD (see, e.g., page 33). Genotyping was performed for 353 different FD chromosomes from 26 linkage families and 148 families with single affected individuals. In particular, the markers D9S127, D9S58 and D9S59 were found to have significant LOD scores, establishing these polymorphisms co-segregate with FD (see Figure 2).

The specification (pages 6 and 15) states that the inheritance of genetic markers within a family can be used to identify individuals that are carriers of a marker indicative of FD because affected individuals will carry the same form of the marker while all unaffected individuals will carry at least one different form of the marker. The specification (page 15) states that, with respect to transmission studies, "the test is carried out by studying the heritability of a combination of two or more polymorphisms linked to familial dysautonomia among any number of suitable family members so as to allow the determination of phenotype. The test can be used prenatally to screen a fetus or presymptomatically, to screen a subject at risk through his/her family."

The specification (pages 34-37) also teaches the results of amplification of D9S58 and D9S105 in 353 different FD genes from the 26 linkage families and the148 families with single affected individuals. As set forth in Table 3, 22 allelic variants of D9S58 were detected in normal chromosomes, ranging in length from 101 to 151 bp, with 18 of these alleles also present in FD chromosomes. 10 allelic variants of D9S105 were detected in normal chromosomes, ranging in length from 183 to 203 bp, with 9 of these alleles also present in FD chromosomes. The specification teaches that allele 18

of the D9S58 polymorphism (PCR product length of 117bp) was associated with FD, with a X^2 value of 3142 and a p value <0.0001 (page 36). Allele 18 of D9S58 occurred in 5% of the Ashkenazi Jewish control population. Allele 8 for D9S105 (PCR product length of 189 bp) was associated with FD, with a X^2 value of 147 and a p value <0.0001 (page 36). However, allele 8 of D9S105 also occurred in 30% of the control population. The haplotype of the "18, 8" alleles for D9S58 and D9S105 occurred in 54% of FD affected chromosomes of Ashkenazi Jewish subjects, and only in 2.5% of control chromosomes of Ashkenazi Jewish subjects (page 36). However, the specification does not teach the sequence of the D9S58 allele "18" or D9S105 allele "8" polymorphisms. It is also unclear as to whether the polymorphisms were amplified using the primers in Table 1 or other primers in order to generate the PCR products described in Table 3 (i.e., the PCR amplification products described in terms of their length). Therefore, it is unclear as to what constitutes the identity of the D9S58 allele "18" and D9S105 allele "8," so that one could detect the combination of these alleles as predictive of the likelihood that a human subject will develop FD.

The Predictability or Unpredictability of the Art and Degree of Experimentation:

The art of determining the occurrence or transmission of a disorder, such as FD, by assaying for the presence of a polymorphism is highly unpredictable. This fact is supported by the teachings in the specification wherein it is disclosed that while the D9S58 polymorphism co-segregates with FD, this polymorphic marker was heterogeneous in 59 of 62 parents of affected children (page 32 and Figure 1). The specification (page 32) states that: "(f)or the purpose of prenatal diagnosis, however,

use of a single marker is prone to potential error occasioned by rare crossover events with the disease gene. Thus, close flanking markers on either side of the FD gene are required to maximize the informativeness and accuracy of prenatal or carrier testing." Thereby, the specification teaches that at least two polymorphic markers should be assayed to determine the inheritance of FD.

Further, the teachings in the specification support the unpredictability of detecting FD by performing only the single step of assaying for one of the polymorphisms of D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 or D9S174. Firstly, the specification teaches that there are multiple alleles for each of the polymorphic markers. For example, there are 22 alleles of D9S58 and 10 alleles of D9S105 (page 36). Not all of the alleles for each of the markers is present in FD subjects, such that 18/22 different D9S58 alleles were present in FD subjects and 9/10 different D9S105 alleles were present in FD subjects (page 36). Most importantly, many of the allelic variants are also present in the control population. For example, the allele "8" of D9S105 was present in 30% of the control population (page 36). Additionally, the specification does not provide any information as to the identity of the alleles for the D9S59, D9S127, D9S53, D9S309, D9S310, D9S172 and D9S174 polymorphisms, such as the sequence or length of particular alleles. The specification does not disclose and adequately characterize any particular alleles of the D9S59, D9S127, D9S53, D9S309, D9S310, D9S172 and D9S174 polymorphisms that were present in FD subjects at a statistically significant higher frequency than in control subjects. Thereby, it is highly unpredictable as to which particular alleles or combinations of alleles of the

claimed polymorphic markers could be detected as predictive of transmission or development of FD.

The unpredictability of establishing a correlation between a polymorphism or a haplotype and a disease is well accepted in the art. For example, Hirschhorn et al. (Genetics in Medicine. 2002. 4(2): 45-61; cited in the IDS of October 10, 2007) teaches that most reported associations between genetic variants and diseases are not robust. Hirschhorn states that "of the 166 putative associations studied three or more times, only 6 have been consistently replicated" (see abstract). The reference sets forth a number of reasons for the irreproducibility of these studies, suggesting that population stratification, linkage disequilibrium, gene-gene or gene-environment interactions, and weak genetic effects and lack of power are possible factors that lead to such irreproducibility. Hirschhorn concludes that "the current irreproducibility of most studies should raise a loud cautionary alarm" (page 60, col. 2). Thus, Hirschhorn cautions in drawing conclusions from a single report of an association between a genetic variant and disease susceptibility. Ioannidis et al (Nature genetics (2001) 29:306-309; cited in the IDS of October 10, 2007) further supports this conclusion in pointing out the heterogeneity of results among different studies of genetic polymorphisms (see abstract, for example). Ioannidis states that "We show that significant between-study heterogeneity (diversity) is frequent, and that the results of the first study correlate only modestly with subsequent studies" (see abstract). The authors conclude that "genetic association studies require cautious replication an issue for both linkage and association studies" (page 308).

Amount of Direction or Guidance Provided by the Specification:

The specification does not provide any specific guidance as to how to identify any allele of the individual polymorphisms of D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174 as predictive of transmission or development of FD. The specification discusses only the general concept of determining the transmission of FD by assaying for the presence of the D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174 polymorphisms in affected and non-affected maternal, paternal and other blood relative subjects, and using the information obtained therefrom to determine the likelihood that a test subject will have inherited an allele of said polymorphisms that co-segregates with the occurrence of FD. Also, while the specification teaches that the haplotype of allele "18" of the D9S58 marker polymorphism and allele 8 of the D9S105 maker polymorphism are associated with FD in Ashkenazi Jewish subjects (page 36), the specification does not adequately describe these alleles in order to enable one of skill in the art to practice a method of detecting the "18,8" haplotype as predictive of the transmission or development of FD.

Conclusions:

Case law has established that '(t)o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'" *In re Wright* 990 F.2d 1557, 1561. *In re Fisher,* 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970) it was determined that '(t)he scope of the claims must bear a reasonable correlation to the scope of enablement

provided by the specification to persons of ordinary skill in the art". The amount of guidance needed to enable the invention is related to the amount of knowledge in the art as well as the predictability in the art. Furthermore, the Court in *Genetech Inc. v Novo Nordisk* 42 USPQ2d 1001 held that '(I)t is the specification, not the knowledge of one skilled in the art that must supply the novel aspects of the invention in order to constitute adequate enablement". In the instant case, the claims do not bear a reasonable correlation to the scope of enablement because the specification does not disclose and adequately characterize a representative number of alleles of the polymorphisms of D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 and D9S174, and combinations thereof, which are correlated with the transmission or development of FD. Nor does the specification enable methods for predicting the transmission or development of FD in a subject by performing the single step of detecting any single or combination of alleles of the D9S59, D9S127, D9S53, D9S58, D9S105, D9S309, D9S310, D9S172 or D9S174 polymorphisms in the subject as predictive of transmission or development of FD. Although the level of skill in the art of molecular biology is high, given the lack of disclosure in the specification and in the prior art and the unpredictability of the art, it would require undue experimentation for one of skill in the art to make and use the invention as broadly claimed.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 27, 34 and 35 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 5,998,133. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claims and the claims of '133 are both inclusive of methods for detecting the presence of a polymorphism that is associated with FD wherein the polymorphism is D9S53, D9S105, D9S309, D9S310, D9S174 or D9S172. While the claims of '133 recite a method for detecting a polymorphism linked to a gene associated with FD and do not specifically recite a method for predicting transmission or development of FD, the claims of '133 further recite that the polymorphism is indicative of a carrier of a gene associated with FD. The claims of '133 also recite that the polymorphism is detected by analyzing maternal and paternal subjects or blood family members for the presence of the polymorphism. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the claimed method of '133 to the prediction of the transmission

or development of FD since the claimed method of '133 recites that the presence of the polymorphism is indicative of a carrier of a gene associated with FD. With respect to present claim 27, claim 5 of '133 recites detecting the polymorphism by autoradiography. With respect to present claim 35, while the claims of '133 do not recite that the subject is of Ashkenazi Jewish descent, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the claimed method of '133 to subjects of Ashkenazi Jewish descent since it was well known in the art at the time the invention was made that FD occurs primarily in subjects of Ashkenazi Jewish descent.

Response to remarks:

In the response of June 27, 2008, Applicants state that a terminal disclaimer will be filed upon indication of allowable subject matter.

The response does not specifically traverse the rejection. The rejection is maintained for the reasons stated above.

6. Claims 27, 34 and 35 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 5,387,506. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claims and the claims of '506 are both inclusive of methods for detecting the presence of a polymorphism that is associated with FD wherein the polymorphism is D9S558, D9S127 and D9S59. While the claims of '506 recite a method for detecting a polymorphism linked to a gene associated with FD and do not specifically recite a method for predicting transmission or development of FD, the

claims of ‘506 further recite that the polymorphism is indicative of a carrier of a gene associated with FD. The claims of '506 also recite that the polymorphism is detected by analyzing maternal and paternal subjects or blood family members for the presence of the polymorphism. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the claimed method of ‘506 to the prediction of the transmission or development of FD since the claimed method of '506 recites that the presence of the polymorphism is indicative of a carrier of a gene associated with FD. With respect to present claim 27, claim 12 of ‘506 recites detecting the polymorphism by autoradiography. With respect to present claim 35, while the claims of ‘506 do not recite that the subject is of Ashkenazi Jewish descent, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the claimed method of ‘506 to subjects of Ashkenazi Jewish descent since it was well known in the art at the time the invention was made that FD occurs primarily in subjects of Ashkenazi Jewish descent.

Response to remarks:

In the response of June 27, 2008, Applicants state that a terminal disclaimer will be filed upon indication of allowable subject matter.

The response does not specifically traverse the rejection. The rejection is maintained for the reasons stated above.

Priority

7. The present claims are entitled to priority only to application 08/480,655, filed June 7, 1995. It is noted that a claim as a whole is assigned an effective filing date, rather than

the subject matter within a claim being assigned individual effective filing dates. In the present case, parent application 08/049,678, filed April 16, 1993 does not provide support for the concept of methods for predicting the transmission or development of FD by detecting a polymorphism selected from D9S309, D9S310, D9S172 or D9S174, as is encompassed by the present claims. Parent application 07/890,719, filed May 29, 1992 (U.S. Patent No. 5,387,506) does not provide support for the concept of methods for predicting the transmission or development of FD by detecting a polymorphism selected from D9S53, D9S105, D9S309, D9S310, D9S172 or D9S174, as is encompassed by the present claims. Accordingly, the claims are entitled only to the filing date of June 7, 1995.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 27, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Blumenfeld et al (WO 93/24657; cited in the IDS of 8/11/08).

Blumenfeld teaches a method for predicting the transmission or development of FD in a human subject comprising detecting the presence of the polymorphic markers D9S53, D9S58, D9S59, D9S105 and D9S127 on chromosome 9 in a human subject, comparing the polymorphic markers with family members that are affected or not affected with FD, and based on said comparison of the polymorphic markers, predicting the transmission or development of FD (see pages 5-6, 14-15, 19, 31-32, and 35-36). Blumenfeld teaches that the most frequent haplotype present in FD subjects was the "18, 8" haplotype for D9S58 and D9S105 (page 35). This haplotype was present in 54% of the FD affected subjects, but was present in only 2.5% of control Ashkenazi Jewish chromosomes (page 35).

Regarding claim 27, Blumenfeld teaches that the polymorphic markers are detected by autoradiography (claim 14 and pages 20-21).

Regarding claim 35, Blumenfeld teaches that FD occurs in individuals of Ashkenazi Jewish descent and teaches determining transmission of FD in individuals of Ashkenazi Jewish descent (pages 18 and 32).

9. Claims 27, 34 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Blumenfeld (U.S. Patent No. 5,387,506; cited in the IDS of October 10, 2007).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Blumenfeld teaches a method for predicting the transmission or development of FD in a human subject comprising detecting the presence of the polymorphic markers D9S58, D9S59, and D9S127 on chromosome 9 in a human subject, comparing the polymorphic markers with family members that are affected or not affected with FD, and based on said comparison of the polymorphic markers, predicting the transmission or development of FD (see col. 5, lines 62-68; col. 6, lines 14-33; col. 7, lines 35-49; and col. 9, lines 13-41).

Regarding claim 27, Blumenfeld teaches that the polymorphic markers are detected by autoradiography (col. 7 line 62 through col. 8, line 15).

Regarding claim 35, Blumenfeld teaches that FD occurs only in individuals of Ashkenazi Jewish descent and teaches determining transmission of FD in individuals of Ashkenazi Jewish descent (col. 1, lines 41-53; and col. 7, lines 9-21).

10. Claims 27, 34 and 35 are rejected under 35 U.S.C. 102(a) as being anticipated by Blumenfeld (U.S. Patent No. 5,387,506; cited in the IDS of October 10, 2007).

It is noted that the applied reference has an inventorship distinct from that of the present application and thereby constitutes prior art 'by another.'

Blumenfeld teaches a method for predicting the transmission or development of FD in a human subject comprising detecting the presence of the polymorphic markers D9S58, D9S59, and D9S127 on chromosome 9 in a human subject, comparing the polymorphic markers with family members that are affected or not affected with FD, and

based on said comparison of the polymorphic markers, predicting the transmission or development of FD (see col. 5, lines 62-68; col. 6, lines 14-33; col. 7, lines 35-49; and col. 9, lines 13-41).

Regarding claim 27, Blumenfeld teaches that the polymorphic markers are detected by autoradiography (col. 7 line 62 through col. 8, line 15).

Regarding claim 35, Blumenfeld teaches that FD occurs only in individuals of Ashkenazi Jewish descent and teaches determining transmission of FD in individuals of Ashkenazi Jewish descent (col. 1, lines 41-53; and col. 7, lines 9-21).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carla Myers whose telephone number is 571-272-0747. The examiner can normally be reached on Monday-Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on 571-272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carla Myers/
Primary Examiner, Art Unit 1634